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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/875,296	06/07/2001	Ryoichi Yamamoto	W-2723 (07250001AA)	4660

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WHITHAM, CURTIS & CHRISTOFFERSON, P.C.  
11491 SUNSET HILLS ROAD  
SUITE 340  
RESTON, VA 20190

EXAMINER

BROOKE, MICHAEL S

ART UNIT PAPER NUMBER

2853

DATE MAILED: 03/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/875,296

Applicant(s)

YAMAMOTO ET AL.

Examiner

Michael S. Brooke

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 10 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 9, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Kitahiro (JP 02158156 translation).

The AAPA teaches an ink jet print head for a printer comprising a head body (150) having a plurality of orifices (20), a plurality of ejection units (see p. 2:15) corresponding to each orifice, a plurality of individual flow paths formed by partition walls (15) and a least one common ink flow path (16). An ink supply bore hole (18) is bored on a side opposite the orifices and supplies ink to the at least one common flow path.

The AAPA teaches the claimed invention with the exception of a metal film at least on a part of at least one side of the head body.

Kitahiro teaches a semiconductor device comprising a semiconductor element (1) and a metal reinforcing layer (3, see p. 5:1-13). The reinforcing layer is formed on the backside of the semiconductor element (p. 4:25). The reinforcing layer allows the thickness of the semiconductor element to be reduced without decreasing its strength (p. 4, para. 2). While Kitahiro is not directed to an ink jet print head, its teachings are

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directly relevant to the ink jet print of the AAPA, as this print head is a semiconductor device.

It would have been obvious to one of ordinary skill in the ink jet art at the time the invention was made to have provided the AAPA with a metal film at least on a part of at least one side of the head body in order to reduce the thickness of the semiconductor substrate without decreasing the strength of the substrate, as taught by Kitahiro. Furthermore, it would have been obvious to one of ordinary skill in the ink jet art to pattern the reinforcing layer to allow for ink inlets or any other openings that are required for the operation of the print head.

3. Claims 2, 4, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Kitahiro (JP 02158156 translation), as applied to claims 1, 3, 9, 11 and 12 above, and further in view of Gaynes et al. (6,197,619).

The AAPA, as modified teaches the claimed invention with the exception of the layer being made of Ni and the layer having a thickness of 0.1 microns to 0.9 microns.

Gaynes et al. teaches a method of reinforcing a semiconductor device by applying a Ni layer (107) having a thickness of 0.1 microns to 4 microns (col. 3:23-29). providing such a layer prevents cracking due to warping or mechanical loading by reinforcing the surface of the device (col. 1:56-60).

It would have been obvious to one of ordinary skill in the ink jet art at the time the invention was made to have provided the AAPA, as modified, with a Ni film having a

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thickness of 0.1 to 0.9 microns for the purpose of reinforcing the device to prevent cracking due to warping or mechanical loading, as taught by Gaynes et al.

### ***Response to Arguments***

4. Applicant's arguments, filed 03/10/3 are not persuasive.

Applicant's argues that since the chip of Kitahiro is to be used in a flexible card, then there is no motivation to combine references, due to the fact that the chip of Kitahiro deals with different stresses than those of the present invention. This argument is not persuasive. Kitahiro, recognizes that a semiconductor chip needs to be very thin, which exposes the chip to potential cracking, due to mechanical stress. In order to preserve the thinness of the chip, a metal reinforcing layer is used to protect the chip from stresses which may crack the chip. This is the same general reason that the present invention provides its reinforcing layer. Thus, the teachings of Kitahiro are relevant and applicable to the AAPA. Furthermore, Kitahiro teaches that the metal reinforced chip may be used in other electronic equipment, such as a calculator (p. 6:5-8). Thus, the use of the reinforcement layer is not limited to a chip in a identification card, but may be applied to other electronic equipment, as well. An ink jet printer would certainly be a piece of electronic equipment that would benefit from the teachings of Kitahiro, because minimizing the thickness of the semiconductor chip allows for a reduction in the size of the print head, which is desirable.

Applicant's argument that Kitahiro would not motivate one to choose metal as the reinforcing material, not persuasive. Kitahiro points out that metal has the advantage of

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being attached easily without any bond (p. 5:11-13). Thus, one of ordinary skill in the art would be more likely to select metal, if they wanted a layer that was easily attached, without any bond.

Applicant's argument that the present head of the present invention does not deal with the thermal cycling that is disclosed in Gaynes, is not persuasive. Gaynes teaches the use of a Ni reinforcement layer to prevent a semiconductor chip from being damaged to stress caused by the heating of the substrate. In the present invention, the Applicant is concerned with reinforcing the chip against heat and mechanical stress. Thus, both Gaynes and the present invention are directed to similar problems. Accordingly, the teachings of Gaynes are relevant to the present invention.

The present claims are directed to a structure, not to a method of making the print head. Whether the chip is made by a continuous wafer process or some other process is not patentably limiting. The present invention teaches a chip having a metal reinforcing layer formed on at least one side of the chip. This is taught by the prior art of record.

### ***Conclusion***

**5. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

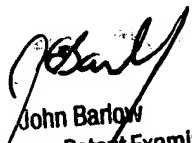
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael S. Brooke whose telephone number is 703-305-0262. The examiner can normally be reached on M-F 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

Michael S. Brooke  
Examiner  
Art Unit 2853

MSB  
March 14, 2003

  
John Barlow  
Supervisory Patent Examiner  
Technology Center 2800